

Amendments to the Drawings:

The attached replacement drawing sheet makes changes to Fig. 4 and replaces the original sheet with Fig. 4.

Attachment: Replacement Sheet

REMARKS

Claims 6, 8-10, 12-4 and 16-21 are pending in this application. By this Amendment, claims 6, 8, 9, 14, 16-18, 20 and 21 are amended; Fig. 4 is amended; and claims 7, 11, 15 and 19 are cancelled. Support for the amendment to claim 6 can be found, for example, at page 4, lines 7-24. Support for the amendments to claims 8 and 9 can be found, for example, at page 10, line 18 - page 11, line 7. Claims 14, 16-18, 20 and 21 are amended to delete spaces. Support for the amendments to Fig. 4 can be found, for example, at page 8, lines 6-7. No new matter is added.

I. Objection to Drawings

The Office Action objects to Fig. 4 asserting that it should be labeled "Prior Art." By this Amendment, a corrected Fig. 4 is labeled "Prior Art." Reconsideration and withdrawal of the objection are respectfully requested.

II. Claim Rejections under 35 U.S.C. §112, Second Paragraph

Claims 8 and 9 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants respectfully traverse the rejection. However, in order to expedite prosecution, Applicants amend claims 6, 8 and 9. Reconsideration and withdrawal of the rejection are respectfully requested.

III. Rejections under 35 U.S.C. §102

A. Moore

Claims 6, 8, 10, 12, 14, 16, 18 and 20 are rejected under 35 U.S.C. §102(b) as being anticipated by Moore (U.S. Patent No. 5,820,686) (hereinafter "Moore"). Applicants respectfully traverse the rejection. However, in order to expedite prosecution, the features of claim 7 have been incorporated into claim 6. Because Moore does not disclose each and every limitation of claim 6, Moore does not anticipate claim 6. Claims 8, 10, 12, 14, 16, 18

and 20 variously depend from claim 6 and, thus, are also not anticipated by Moore.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Anderson

Claims 6, 8, 10, 12, 14, 16, 18 and 20 are rejected under 35 U.S.C. §102(e) as being anticipated by Anderson et al. (US 2003/0178145) (hereinafter "Anderson"). Applicants respectfully traverse the rejection. However, in order to expedite prosecution, the features of claim 7 have been incorporated into claim 6. Because Anderson does not disclose each and every limitation of claim 6, Anderson does not anticipate claim 6. Claims 8, 10, 12, 14, 16, 18 and 20 variously depend from claim 6 and, thus, are also not anticipated by Anderson. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

IV. Claim Rejections under 35 U.S.C. §103

A. Moore in view of Somekh

Claims 7-9, 11-13, 15-17 and 19-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moore in view of Somekh et al. (U.S. Patent No. 5,643,336) (hereinafter "Somekh"). Applicants respectfully traverse the rejection.

Neither Moore nor Somekh, alone or in combination, teach or suggest "a susceptor in which a semiconductor substrate is supported approximately horizontally in a pocket ... wherein the pocket is for a silicon single crystal substrate of 300mm in diameter, and a substrate supporting surface is inclined at an angle of more than 0 degree and not more than 1 degree with respect to the horizontal surface."

Moore teaches an RTP reactor susceptor in a multilayer structure, wherein the susceptor uses 300mm diameter wafers and shows an incline angle of about 4.1° for a substrate surround ring used with an 8" (200mm) substrate and that the particular dimensions of the substrate surrounding ring are determined empirically to minimize slip and maintain substantially uniform temperature. See Moore at col. 8, lines 37-40; col. 24, lines 57-61; and

col. 25, lines 13-17. The Office Action admits that Moore does not teach or suggest a pocket for the silicon single crystal substrate of 300mm in diameter and the substrate supporting service is inclined at an angle of more than 0 degree and not more than 1 degree with respect to the horizontal surface.

Somekh is directed to structures and methods to transfer and hold a semiconductor wafer during transfer into and out of a CVD type processing chamber as well as during processing. Somekh teaches that the slope 60 is defined by its edges 58 and 59 with its surface sloping at a slight angle (preferably 1-3°). See Somekh et al. at col. 5, lines 57-63.

As described in the specification, when the inclination angle is 0° or less, an arc shaped scratch is prone to be generated on the rear surface of the semiconductor substrate and when the inclination angle is larger than 1°, the frequency of occurrence of slip dislocation of the single crystal thin film which is subjected to vapor phase growth increases rapidly. See specification at page 4, lines 15-24. On the contrary, Somekh teaches a preferred angle range of 1-3°. Therefore, one of ordinary skill in the art would not have been motivated at the time the invention was made to have a pocket for a silicon single crystal substrate of 300mm in diameter and the substrate supporting surface is inclined at an angle of more than 0° and not more than 1° with respect to the horizontal surface.

As neither Moore nor Somekh, alone or in combination, teach or suggest each and every feature of claim 6, neither Moore nor Somekh anticipate or would have rendered obvious the subject matter of claim 6. Claims 8-10, 12-14, 16-18, 20 and 21 variously depend from claim 6 and, thus, would not have been rendered obvious by Moore and Somekh. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Moore in view of Anderson

Claims 7, 9, 11, 13, 15, 17, 19 and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moore in view of Anderson. Applicants respectfully traverse the rejection.

Claim 6 is directed to "a susceptor in which a semiconductor substrate is supported approximately horizontally in a pocket ... wherein the pocket is for a silicon single crystal substrate of 300mm in diameter, and the substrate supporting surface is inclined at an angle of more than 0 degree and not more than 1 degree with respect to the horizontal surface."

Moore teaches an RTP reactor susceptor in a multilayer structure, wherein the susceptor uses 300mm diameter wafers and shows an incline angle of about 4.1° for a substrate surround ring used with an 8" (200mm) substrate and that the particular dimensions of the substrate surrounding ring are determined empirically to minimize slip and maintain substantially uniform temperature. See Moore at col. 8, lines 37-40; col. 24, lines 57-61; and col. 25, lines 13-17. The Office Action admits that Moore does not teach or suggest a pocket for the silicon single crystal substrate of 300mm in diameter and the substrate supporting service is inclined in an angle of more than 0 degree and not more than 1 degree with respect to the horizontal surface.

The Office Action asserts that Anderson teaches a substrate supporting surface of 0.1-7.0°. Therefore, the Office Action alleges that it would have been obvious at the time the invention was made for a person of ordinary skill in the art to have empirically explored various angles of substrate supporting surfaces for 300mm substrates and that Anderson discloses that 0.1-7.0° may be used.

Applicants respectfully disagree with the Office Action. Anderson teaches the susceptor ledge 546 to be 1.5° and a range of 0.1-7.0°. However, Anderson does not teach a pocket for the silicon single crystal substrate of 300mm in diameter and the substrate supporting service is inclined in an angle of more than 0 degree and not more than 1 degree

with respect to the horizontal surface. As described in the specification, when the inclination angle is 0° or less, an arc shaped scratch is prone to be generated on the rear surface of the semiconductor substrate and when the inclination angle is larger than 1° , the frequency of occurrence of slip dislocation of the single crystal thin film which is subjected to vapor phase growth increases rapidly. See specification at page 4, lines 15-24. Thus, Anderson does not recognize the problem that the frequency of occurrence of slip dislocation of the single crystal film is subject to rapid vapor phase growth when the inclination angle is great than 1 degree. Therefore, the claimed invention would not have been rendered obvious by Anderson.

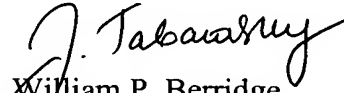
As neither Moore nor Anderson, alone or in combination, teach or suggest each and every feature of claim 6, neither Moore nor Anderson anticipate or would have rendered obvious the subject matter of claim 6. Claims 8-10, 12-14, 16-18, 20 and 21 variously depend from claim 6 and, thus, would not have been rendered obvious Moore and Anderson. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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WPB:ABF/jls

Attachments:

Replacement Sheet
Petition for Extension of Time

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